Mean-Field Study of MIT Suppression in Pr-227 via Rare Earth Magnetism\textsuperscript{1} KYLE SHERMAN, Binghamton University — We report on a stability study of the metal-insulator transition in the pyrochlore iridates at zero kelvin. The purpose of this study has been to determine how the insulating state may be suppressed in Pr\textsubscript{2}Ir\textsubscript{2}O\textsubscript{7} due to the frustrated Pr magnetism. Our model incorporates itinerant Ir electrons and their correlations, spin-orbit coupling, and effects of the localized Pr spins. We have included a Kondo interaction between sub-lattices and an antiferromagnetic interaction between neighboring Pr spins. Our phase diagram demonstrates tuning among the paramagnetic, 2i\textsubscript{2}o, 3i\textsubscript{1}o, and AiAo configurations as well as a metal to insulator transition.

\textsuperscript{1}Office of Naval Research